

PORTABLE ELEMENT FOR RECEIVING, STORING, DISPLAYING AND OUTPUTTING DIGITAL DATA, AND A RESERVATION DEVICE FOR USE IN A RESERVATION SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention in general relates to a reservation system, for a system including one or more service facilities. An example of such a service facility is a circulating vehicle. A reservation system of this kind furthermore includes a reservation device, for example, a terminal. Access to the terminal can be realized in different manners, for example, by way of a public telephone. A reservation system of this kind provides a given service to users according to some form of strategy, for example, one for optimum use of the capacity of the service facility (facilities).

The invention in detail concerns a portable element for receiving, storing, displaying and outputting digital data, comprising a data input, a memory having at least partially modifiable content, a display device for the persistent display of digital data in the form of characters on the basis of data received on the data input, and a data output.

2. Description of the Prior Art

An element of this kind is known per se from U.S. Pat. No. 3,978,320. The known device comprises a plastic card on which there is provided a magnetizable strip and an electrochromic display device providing a persistent display. The known device operates as an updating device for a stock list, for example, in a warehouse.

The invention aims to provide a portable element which corresponds to the known element in given respects but which has been improved in order to enable its use in a reservation system.

The objects of the invention are achieved in that, when used in a reservation system comprising at least one locally present reservation device and at least one service facility which is not locally present, said data input and data output are suitable for coupling to an access device of the reservation device, and for then receiving a proximity signal from the reservation device, said memory being suitable to transmit, co-controlled by said proximity signal, identification data stored in said memory and a reservation request concerning the service facility to the reservation device in order to grant the reservation request, unblocking being realized by a verification signal generated by said identification data after examination thereof in the reservation device, the display device being suitable to display, under the control of the content of the memory modified by a signal of availability data from the reservation device, the reservation data concerning a reservation of a service facility, the availability data in the reservation device being adapted at the same time. The initiation of a possibly rudimentary, i.e. not yet specified, reservation request thus takes place from the portable element as an active device. Such a rudimentary reservation request may be embodied, for example, in a set/reset flag bit, or even in a permanently wired bit position.

The treatment of the reservation request can be started together with said proximity signal from the reservation device (this may also concern one bit position). Contrary to the foregoing, the known element was active only in a slave mode. As a result of the persistently displayed reservation data, the bearer (holder)

of the element can continuously inform himself as regards the reservation, if desired. Furthermore, the reservation is now coupled to the portable element: the quantity of the reservation, therefore, cannot be larger than embodied in the logic structure of this portable element. For example, it is now possible that each portable element can reserve only one or two seats in said vehicle. As a result, jamming of the reservation system can be prevented, which could occur if an unlimited number of reservations (possibly fraudulent) could be executed. On the other hand, a single reservation request may also concern a large number of seats when the reservation system has a so-called "taxi mode", whereby a complete vehicle is reserved. Large groups can thus receive faster service. The identification data can be used for updating a balance, for example, a credit balance or statistics concerning the use of the service facility. Other possible uses concern the granting of priority to given requests for reservation, or the exclusion of other persons making a request, for example, when the card has been stolen. The persistent display can make the portable element suitable as an admission card when the service facility is subject to human supervision. The persistent display can also indicate a choice to be made by the bearer, for example, when a plurality of service facilities are simultaneously or successively present. Finally, the display of the portable element may indicate that reservation is not possible. The service facility is not locally present. This implies that the intermediate step between user and the service facility by way of a reservation device offers advantages, because the planning efficiency can be enhanced. The distance between user and service facility itself may be comparatively small, for example, 25 meters when the service facility comprises a number of luggage vaults.

U.S. Pat. No. 3,906,460 describes an active, portable element for use in combination with an available system, for example, a public transport means. It can alternatively be used as a credit card. The known element notably contains variable data such as a credit balance (for example, expressed as an amount of money or a (permissible) distance yet to be traveled). Special steps are taken therein to prevent frauds. Consequently, the known device does not concern a reservation system and, therefore, the display device thereof is only suitable for the display of a few "OK" signals as regards a credit balance stored in the portable element and also as regards attempts of unauthorized persons to gain access to the system. The known device thus concerns a payment system and not a reservation system. If desired, a payment system of this kind can also be incorporated as an additional function in a portable element in accordance with the present invention.

SUMMARY OF THE INVENTION

Preferably, the portable element comprises an inductive loop device for the contactless receiving of an energy pattern which is locally built up by the reservation device and which serves to power circuit components of the portable element, including the display device which persistently displays for at least a predetermined period of time when the portable element is uncoupled from the reservation device, and also to enable bidirectional data traffic in order to realize the coupling between said data input and data output on the one side and said access device on the other side. A very robust connection is thus realized: it is no longer neces-